

HiCAMS User Guide

Chapter 4: Contract Tracking

Section 7: Audit Materials

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About Audit Materials

The **Audit Materials** function was introduced in HiCAMS V5.9 (January 21, 2005). The display options were significantly revised in HiCAMS V6.4 (December 10, 2007) to enhance usability.

The Audit Materials module incorporates many aspects of the Contract Materials Discrepancy, Contract Materials w/ Line Items, and Contract Quantity Statistics reports into a single Report with dynamic access to source documents. Users are also provided with a Notes field for each material where explanations for the system identified Discrepancies can be entered. This allows communication between the construction field users and the records section at the Materials and Tests unit.

This function retrieves all source records (MRRs, Tickets, Pay Records, Work Items, FIRs, and Samples) associated with a contract and computes aggregate material quantity received, accepted and paid, and marks material quantity discrepancies (Paid vs Accepted vs Received).

This function:

1. Reads the database to accumulate all MRRs, Tickets, Pay Records, Work Items, FIRs, and Samples associated with a contract each time the window is used to generate project certification information for a contract or a project certification standard report is generated. This process will take several seconds to a few minutes, in contrast to reports that have existed in previous HiCAMS releases which used to read from a pre-computed set of contract material quantities data.
2. Displays material quantities in an order to set focus to the critical materials with quantity discrepancies first.
3. Provides Status columns to allow both Construction and M&T staff to independently mark the materials that they have reviewed and also a Notes column to document their research/findings.
4. Allows a Material drill-down to source detail.
5. Provides Date, Line Item, and Material filters, and options for sorting and grouping the retrieved data, while allowing simultaneous print previews of the same. You can do a Print Preview of the data sorted and displayed with one set of parameters, and then select different settings and generate a second report. Both print previews will remain active.
6. Accumulates and displays additional information pertaining to calculation of contract material quantities about a source record and its material.
7. Displays the Minimum Sampling Guide logic used to derive the Material Quantity accepted from a source record.

The original discrepancy reports (Contract Materials Discrepancy, Contract Materials w/ Line Items, and Contract Quantity Statistics reports) have temporarily been retained in HiCAMS with inclusion of additional fields for criteria and display, but will be discontinued in the near future.

Note: The same module is launched from the menu option **Functions -> Project Certification -> Review Project Certification**.

The Contract Material Quantities Tab

To work with the Audit Materials window, go to **Functions -> Contract Tracking -> Audit Materials**. Enter the Contract Number whose project records you wish to review in the Contract field.

Note: For information on ways to find your contract number, follow the "HiCAMS Basics" link on the User Guide section of the HiCAMS Home Page.

Below is an example of the Audit Materials window for contract C200551.

Possible Error:

Pay attention to the Date and Time following Material Quantities. The data on this report is from December 6, 2007 at 11:23:04. Any corrections made to data after that time will not appear in this window until the report is Generated again.

HiCAMS - [testcna]

File Edit Functions Inquiries References Admin Tools Window Help

Audit Materials (C200551)

Contract Material Quantities Detail Previous Material Quantities Log

Contract: C200551 Contractor: APAC - ATLANTIC, INC. THOMPSON ARTH Status: Activated (Re) Generate

Description (nickname): Kannapolis Bypass Send Notification

Data Generation

☒ Regenerate using MSG spec on source record ☐ Regenerate using latest MSG spec on CBOM

Material Quantities List Filter

Criticality (All) Construction Status (All) M&T Status (All)

Material Quantities (as of 12/6/2007 11:23:04)

| Critical | Material | Plan | Estimated | Paid/ Used | Accepted | Received | Constr Status | M&T Status | Notes |
|----------|---------------------------|-------------|------------|---------------|------------|------------|------------------|---------------|-------|
| Critical | Bituminous Coated Corru | 342.000 | 295.300 | 295.300 * | 236.000 * | 134.200 | TBR | TBR | |
| Critical | Borrow Excavation - Cubi | 147,876.000 | 70,561.000 | 70,557.000 * | 4.000 * | .000 | TBR | TBR | |
| Critical | Corrugated Steel Pipe Cu | 39.600 | 39.700 | 39.700 * | 39.600 * | 36.600 | TBR | TBR | |
| Critical | Corrugated Steel Pipe Cu | 30.000 | 56.100 | 56.100 * | 37.892 * | 18.300 | TBR | TBR | |
| Critical | Aggregate Base Course - | 90,989.000 | 90,873.540 | 92,230.130 * | 24,658.650 | 90,873.540 | TBR | TBR | |
| Critical | Asphalt Binder, PG 64 - M | 3,700.000 | 4,379.983 | 7.000 * | .000 | .000 | TBR | TBR | |
| Critical | Asphalt Concrete Base C | 5,375.000 | 8,716.770 | 2,388.650 * | .000 | 2,388.250 | TBR | TBR | |
| Critical | Asphalt Concrete Base C | 5,375.000 | 8,716.770 | 6,268.310 * | .000 | 6,268.310 | TBR | TBR | |
| Critical | Asphalt Concrete Base C | 5,375.000 | 8,716.770 | 60.210 * | .000 | 60.210 | TBR | TBR | |
| Critical | Asphalt Concrete Interme | 34,500.000 | 41,210.570 | 1,409.800 * | .000 | 1,406.800 | TBR | TBR | |
| Critical | Asphalt Concrete Interme | 34,500.000 | 41,210.570 | 39,812.332 * | .000 | 39,803.770 | TBR | TBR | |
| Critical | Asphalt Concrete Surface | 28,415.000 | 36,340.100 | 33,690.080 * | .000 | 33,248.940 | TBR | TBR | |

1 to 12 of 198 rows

A text description of the contract.

Material Quantities List Filters

These filters provide the ability to limit the window output based on the Material Criticality, the Construction Status, and the M&T Status.

Criticality: This is the Minimum Sampling Guide Criticality Code which is described below. The default setting is All.

Construction and M&T Status: This is the Project Certification status for the Material which is described below. The default setting is All.

By setting the filters to Critical Materials with a Construction Status of TBR (To Be Reviewed), users are able to print a report of those items which require the most attention to rectification of discrepancies. After the quarterly or monthly review process is in place, the Construction Status of CSR (Changed since Reviewed) would also need to be checked.

Column Definitions for Contract Material Quantities Tab

Critical: The Minimum Sampling Guide Project Certification Criticality code. The MSG Project Certification Criticality Codes are as follows:

Critical: Materials with an MSG Project Certification Code set to CRITICAL would include all Materials which are required for Project Certification. These Materials must be entered using the Review Tickets or Review Materials Receipts window.

Non-Critical: Materials with an MSG Project Certification Code set to NON-CRITICAL would include all Materials which are required for Tracking purposes. These Materials must be entered using the Review Tickets or Review Materials Receipts window.

Minor: Materials with an MSG Project Certification Code set to MINOR would include Materials which are required for Sampling purposes or which are incidental to other work. These Materials would not necessarily require entry through the Review Materials Receipts window but may require Ticket Book Entry.

Material: The Material Description for Materials found on this project.

Plan: The Contract Plan Quantity multiplied by the conversion factor.

Estimated: The calculated amount of material on all Estimates which have a status of Paid PLUS any quantity that has been included on an estimate which is not in the Paid Status.

Paid/Used: The amount of this specific material which has been paid.

In the example above, find the material "Asphalt Binder, PG 64". The **Plan** quantity is 3,700.000 tons. The **Estimated** quantity is 4,379.983 Tons and the **Paid** quantity is 7.000 tons. Looking at the other materials shown confirms that there is Asphalt Concrete paving on the current unpaid estimate.

* **column 1:** A * in this column indicates that the Paid Quantity is more than the Accepted Quantity.

Accepted: The quantity of this specific material which has been Accepted.

* **column 2:** A * in this column indicates that the Accepted is more than the Received Quantity.

Received: The quantity of this specific material which has been received.

Constr Status: The predefined values for this column are:

| Entry | Stands for: | Required Action: |
|-------|------------------------|---|
| OK | No discrepancy | OK indicates that the Material Quantity Paid is less than or equal to the Material Quantity Accepted AND that the Material Quantity Accepted is less than or equal to the Material Quantity Received. No action needed |
| TBR | To Be Reviewed | The Material Quantity Accepted is less than the Material Quantity Paid OR the Amount Accepted is greater than the Amount Received. The difference should be investigated and explained. |
| RVWD | Reviewed | The discrepancy is investigated and the reason is noted in the Notes column. This is the only status is set by the user. |
| CSR | Changed since Reviewed | The Amount Accepted is less than the Amount Paid after a re-generation of the data. NOTE: It is also possible that a material which was OK before the re-generation changes to TBR based on data entry which has occurred. |

M&T Status: These statuses are the same as those in the table above.

Notes: A running log of comments made by Construction and Materials and Test Users. Click the Notepad icon to enter a new note or read the ones previously entered.

Comments cannot be erased! Here are some examples of the kind of comments to be entered.

"Reviewed Density and QA records and applied appropriate penalties. See PAR 5."

"Pipe has already been backfilled and can not be inspected. Accepted by Resident Engineer."

"Small Quantity indicator should have been checked."

"Concrete Pipe cannot currently be certified by contract in HiCAMS."

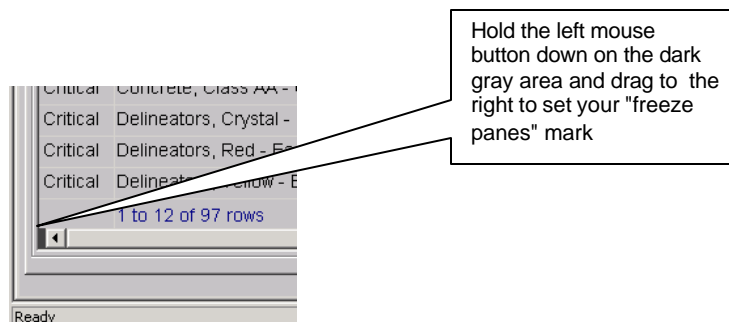
"This material is not received"

"Sample entered for wrong material."

It is not necessary to enter comments when you are still investigating a discrepancy, i.e. there is no need to enter a note such as "working with SMS to resolve difference"

There are two ways to see the additional columns on the window. The first way is to use the scroll bar or arrow buttons on the bottom of the window. It is somewhat difficult to review the window this way because the Criticality and Material Description move off the window to the left.

A better way to review the additional columns is to use the "Freeze Panes" tool in the far left of the scroll bar.



Below is an example of the Audit Materials window after the freeze panes mark has been positioned between the Material column and the Plan column, and the columns scrolled to the left to show the remaining columns.

HiCAMS - [testcna]

File Edit Functions Inquiries References Admin Tools Window Help

Audit Materials (C201310)

Contract Material Quantities Detail Previous Material Quantities Log

Contract: C201310 Contractor: BARNHILL CONTRACTING COMPANY Status: Activated (Re) Generate

Description (nickname): Bingham Drive Send Notification

Data Generation

☒ Regenerate using MSG spec on source record ☐ Regenerate using latest MSG spec on CBOM

Material Quantities List Filter

Criticality (All) Construction Status (All) M&T Status (All)

Material Quantities (as of 11/30/2007 00:59:07)

| Critical | Material | Accepted - Used | Received - Used | Received - Accepted | CBOM MSG Group | CBOM MSG How Received | Constr Last Revwd | Constr Revwd Qtys |
|----------|----------------------------|--------------------|--------------------|------------------------|-------------------|--------------------------|----------------------|--------------------------------|
| Critical | 18" Steel Pipe Piles - Coz | (4,694.254) | (1,594.254) | 3,100.000 | Steel | Material Receipt | 12/03/2007 | Paid: 4694.254; Acc: 0; Rec: 3 |
| Critical | Aggregate Base Course - | (423.538) | 2,296.022 | 2,719.560 | Aggregate | Ticket | | |
| Critical | Aggregate Base Course, | (144.660) | .000 | 144.660 | Aggregate | Ticket | | |
| Critical | Aluminized Corrugated St | (82.984) | (82.984) | .000 | Pipe | Material Receipt | | |
| Critical | Aluminized Corrugated St | (37.720) | (37.720) | .000 | Pipe | Material Receipt | | |
| Critical | Aluminized Corrugated St | (1.886) | (1.886) | .000 | Pipe | Material Receipt | | |
| Critical | Aluminum Vertical Stiffen | (239.522) | (239.522) | .000 | Traffic Contr | Material Receipt | | |
| Critical | Asphalt Concrete Base C | (1,886.000) | (1,886.000) | .000 | Asphalt | Ticket | | |
| Critical | Asphalt Concrete Base C | (457.355) | (435.215) | 22.140 | Asphalt | Ticket | | |
| Critical | Asphalt Concrete Base C | (457.355) | 17,376.145 | 17,833.500 | Asphalt | Ticket | | |
| Critical | Asphalt Concrete Base C | (4,715.000) | (4,414.910) | 300.090 | Asphalt | Ticket | | |
| Critical | Asphalt Concrete Interme | (17,181.460) | (17,161.480) | 19.980 | Asphalt | Ticket | | |

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Ready

The following columns are the same calculations which appear on the Contract Materials Discrepancy Report.

Accepted - Used: The difference between the Accepted Quantity and the Paid/Used Quantity.

Received - Used: The difference between the Received Quantity and the Paid/Used Quantity.

Received - Accepted: The difference between the Received Quantity and the Accepted Quantity.

CBOM MSG Group: The high level material group to which this Material Type and Material Description belong.

CBOM MSG How Received: The Contract Tracking function used to update the Received Quantity. The two categories are Material Receipts and Tickets. There is also a How Received code of Not Received. The Received Quantity for these items will always be zero.

Constr Last Revwd: The date on which the Constr Status for this Material was last changed.

Constr Revwd Qtys: The Paid, Accepted, and Received quantities at the time of the last construction review. This will help identify what has changed to cause the Constr or M&T Status column to be set to CSR (Changed Since Reviewed).

There are also two columns **M&T Last Revwd** and **M&T Revwd Qtys** which track the same information for the Materials and Tests section.

Using the (Re) Generate and Send Notification buttons

The (Re) Generate button: Use this button to incorporate any changes that have been made to Material Receipts, Tickets, FIRs, Samples, etc now instead of waiting for the nightly batch process to run. A copy of the current record will be saved on the Previous Material Quantities tab until the window is closed.

The Send Notification button: This button allows the M&T Records Section Specialists to send a HiCAMS notification with additional comments to the Resident and Assistant Resident assigned to a contract. This allows feedback from M&T to the RE office.

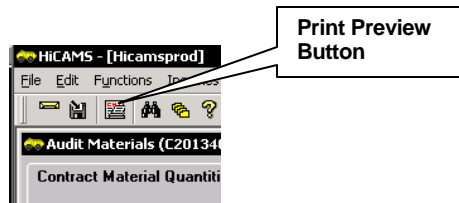
The screenshot shows the HiCAMS software interface. A 'Send Notifications To...' dialog box is open, displaying a list of staff members: Bunn, PE, Eddie J and Deal, Jimmy V. Below the list is a 'Notification Comment' field with the text: 'It is now possible to enter a personalized notification message.' The dialog box has buttons for 'Send', 'Add Staff', 'Delete Staff', and 'Cancel'.

In the background, a data table is visible with the following columns: Paid/Used, Accepted, Received, Constr Status, M&T Status, and Notes. The table contains several rows of data, including materials like Concrete, Class B - Cubic, Concrete, Class M - Cubic, Field Density - Subgrade, Masonry Drainage Struct, Reinforced Concrete Pipe, and Reinforced Concrete Pipe. The status columns show values like TBR, RVWD, and CSR.

| | Paid/Used | Accepted | Received | Constr Status | M&T Status | Notes | | |
|----------|---------------------------|------------|-----------|---------------|------------|-------------|-----|--|
| Critical | 3,225.080 * | .000 | 3,225.080 | TBR | TBR | | | |
| Critical | 1,582.730 * | .000 | 1,582.730 | TBR | TBR | | | |
| Critical | 8,811.946 * | .000 | .000 | TBR | TBR | | | |
| Critical | .130 * | .000 | .000 | RVWD | TBR | | | |
| Critical | .130 * | .000 | .000 | TBR | TBR | | | |
| Critical | .130 * | .000 | .000 | TBR | TBR | | | |
| Critical | Concrete, Class B - Cubic | 938.815 | 482.671 | 482.673 * | 300.000 | 521.000 TBR | TBR | |
| Critical | Concrete, Class M - Cubic | 3.650 | .130 | .130 * | .000 | .000 TBR | TBR | |
| Critical | Field Density - Subgrade | 15,500.000 | 8,811.946 | 8,811.946 * | .000 | .000 TBR | TBR | |
| Critical | Masonry Drainage Struct | 52.000 | 28.000 | 28.000 * | .000 | .000 TBR | TBR | |
| Critical | Reinforced Concrete Pipe | 3,894.000 | 1,571.500 | 1,571.500 * | 944.000 | 944.000 TBR | TBR | |
| Critical | Reinforced Concrete Pipe | 742.000 | 421.000 | 421.000 * | 400.000 | 400.000 TBR | TBR | |

Reporting Function

It is possible to generate a Printout of the data shown on the Contract Materials Quantities tab by clicking on the Print Preview button.



Below is an example of the Print Preview for Contract C200551.

HiCAMS - [testcona]

File Functions Inquiries References Admin Tools Window Help

Contract Material Quantities (C200551 - as of 12/6/2007 11:23:04)

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North Carolina Department of Transportation

Contract Material Quantities (C200551 - as of 12/6/2007 11:23:04)

Contract Number: C200551 Criticality: (All)

Contract Description: GRADING, DRAINAGE, PAVING & STRUCTURES.

Contract Location: KANNAPOLIS WESTSIDE BYPASS FROM NC-73 TO NC-136 (MOORESVILLE RD).

| Critical | Material | Constr Status | M&T Status | Plan | Estimated | Paid/Used | Accepted | Received | Accepted - Used | Received - Used | Received - Accepted |
|----------|---|---------------|------------|-------------|------------|--------------|------------|------------|-----------------|-----------------|---------------------|
| Critical | Bituminous Coated Corrugated Steel Pipe Culvert, Type B, 1.63 mm Thick, 400 mm - Meters | TBR | TBR | 342.000 | 295.300 | 295.300 * | 236.000 * | 134.200 | (59.300) | (161.100) | (101.800) |
| Critical | Borrow Excavation - Cubic Meters | TBR | TBR | 147,876.000 | 70,561.000 | 70,557.000 * | 4.000 * | .000 | (70,553.000) | (70,557.000) | (4.000) |
| Critical | Corrugated Steel Pipe Culvert, 1.63 mm Thick, 300 mm - Meters | TBR | TBR | 39.600 | 39.700 | 39.700 * | 39.600 * | 36.600 | (1.100) | (3.100) | (3.000) |
| Critical | Corrugated Steel Pipe Culvert, 1.63 mm Thick, 450 mm - Meters | TBR | TBR | 30.000 | 56.100 | 56.100 * | 37.892 * | 18.300 | (18.208) | (37.800) | (19.592) |
| Critical | Aggregate Base Course - Metric Ton | TBR | TBR | 90,989.000 | 90,873.540 | 92,230.130 * | 24,658.650 | 90,873.540 | (67,571.480) | (1,356.590) | 66,214.890 |
| Critical | Asphalt Binder, PG 64 - Metric Ton | TBR | TBR | 3,700.000 | 4,379.983 | 7.000 * | .000 | .000 | (7.000) | (7.000) | .000 |
| Critical | Asphalt Concrete Base Course, Type B 25.0B - Metric Ton | TBR | TBR | 5,375.000 | 8,716.770 | 2,388.650 * | .000 | 2,388.250 | (2,388.650) | (4.400) | 2,388.250 |
| Critical | Asphalt Concrete Base Course, Type RB 25.0B - Metric Ton | TBR | TBR | 5,375.000 | 8,716.770 | 6,268.310 * | .000 | 6,268.310 | (6,268.310) | .000 | 6,268.310 |
| Critical | Asphalt Concrete Base Course, Type RB 25.0B - Metric Ton | TBR | TBR | 5,375.000 | 8,716.770 | 6,268.310 * | .000 | 6,268.310 | (6,268.310) | .000 | 6,268.310 |

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To print the report, click on the Printer Icon again and print as usual.

The Details Tab

The power of the Audit Materials module is in the Details Tab.

When the Details tab is accessed the first time after a contract's data is retrieved or regenerated, the Project Certification Display Options window opens automatically.

Below is an example of the Project Certification Display Options window for Contract C201548 with the default settings shown.

NOTE: The report now defaults to Not Include materials that are Not Received. These Materials can be displayed by checking the "Include 'Not Received' Material Types".

The screenshot shows the 'Project Certification Display Options' window in the HiCAMS application. The window is titled 'Project Certification Display Options' and has a standard menu bar (File, Edit, Functions, Inquiries, References, Admin, Tools, Window, Help). The window is divided into several sections:

- Source:** Includes 'Source Date From' and 'To' date pickers, both set to '00/00/0000'. Below are checkboxes for 'MRRs', 'MRR Alt IDs', 'Tickets', 'Pay Records', 'Samples', 'Sample - Contract Line Items', 'FIRs', and 'Work Items'. All are checked.
- Contract Line Item:** A dropdown menu for 'Line Item' set to '(All)'.
- Discrepancies (at LI level):** Includes a 'Type' section with radio buttons for 'None', '-ve', 'Both', and '+ve'. The 'Category' section has checkboxes for 'Acc - Paid', 'Rec - Paid', and 'Rec - Acc', all of which are checked.
- MSG & Material:** Includes checkboxes for 'Pretest', 'Certification', 'Approved List', 'Sample Required Material Types Only', 'FIR Required Material Types Only', 'Criticality', 'Include 'Not Received' Material Types', 'Match', 'No Match', 'Alt ID Required', 'RE Owner', 'M&T Owner', 'Visual Inspection', and 'Catalog Cut'. Below are text fields for 'Material:', 'Material Type:' (set to '(All)'), and 'Group:' (set to '(All)').
- Display Detail:** Includes checkboxes for 'Display Detail' (checked) and 'Show Line Separator'.
- Sort Order & Group Totals:** Includes radio buttons for 'By Contract LI', 'By Material', 'Other', and 'None'. Below is a table for 'Sort By' with columns for 'Material', 'Header?', and 'Total?'. The first row is 'Material' with 'Header?' and 'Total?' checked. The other four rows are '(None)' with both 'Header?' and 'Total?' unchecked.

At the bottom of the window are buttons for 'Restore Defaults', 'Save Settings', 'Restore Settings', 'OK', and 'Cancel'. Below the window, there is a status bar with buttons for 'Alt ID Distribution', 'Go To Source', 'Display Options', and 'More Info', along with a page indicator '1 of 1 Pages' and navigation arrows.

Filter Definitions

There are four Filter areas. The default settings give a review of the discrepancies by Material for Critical Materials. The Default Settings can always be obtained by clicking on the Restore Defaults button at the bottom of the window.

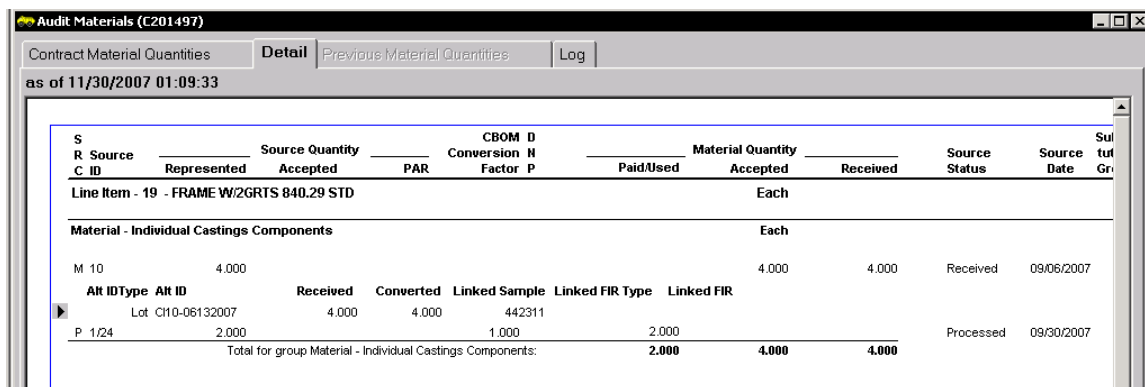
Source Filter: The default is for all data which contributes to Paid, Accepted, and Received Quantities.

Source Date From and To: Entering dates in these fields allows the user to retrieve records for a specific time period, for example the Fiscal Year or the first quarter. The date settings also allow a review of when samples were taken relative to when payments were made. The default setting is blank to include all records regardless of date.

MRRs: If this box is checked, information from Material Received Reports will display on the report. The default setting is checked.

MRR Alt IDs: If this box is checked, Alternate IDs associated with an MRR will be displayed. The default setting is unchecked.

Below is an example of the report obtained when the MRR Alt IDs box is checked. If the alternate ID is matched to a Sample or a Field Inspection Report, the linked Sample/FIR number will displayed.



| S | R | Source | Source Quantity | CBOM D | Conversion H | Paid/Used | Material Quantity | Source | Source | Sul |
|--|------|-------------|-----------------|--------|--------------|-----------|-------------------|----------|-----------|------------|
| C | ID | Represented | Accepted | PAR | Factor | P | Accepted | Received | Status | tut |
| | | | | | | | | | | Gr |
| Line Item - 19 - FRAME W/2GRTS 840.29 STD | | | | | | | | | | |
| | | | | | | | Each | | | |
| Material - Individual Castings Components | | | | | | | | | | |
| | | | | | | | Each | | | |
| M | 10 | | 4.000 | | | | 4.000 | 4.000 | Received | 09/06/2007 |
| Alt ID Type Alt ID Received Converted Linked Sample Linked FIR Type Linked FIR | | | | | | | | | | |
| | | Lot | CH10-06132007 | 4.000 | 4.000 | 442311 | | | | |
| P | 1/24 | | 2.000 | | | 1.000 | 2.000 | | Processed | 09/30/2007 |
| Total for group Material - Individual Castings Components: | | | | | | | 2.000 | 4.000 | 4.000 | |

Tickets: If this box is checked, Ticket Book information will be displayed. The default setting is checked.

Pay Records: If this box is checked, information from Pay Records will display on the report. The default setting is checked.

Samples: If this box is checked, Sample information will be displayed. The default setting is checked.

Samples - Contract Line Items: If this box is checked, Samples that have multiple Line Items associated with them display the multiple Line Items. The default setting is unchecked.

Below is an example of the report obtained when the **Samples - Contract Line Items** box is checked. Notice that for sample 361442, multiple line items are listed.

| S | R Source | Source Quantity | PAR | CBOM Conversion Factor | D | Material Quantity | Source Status | Source Date | Source Group |
|----------------------------------|-------------|-----------------|-----|------------------------|---|-----------------------------|---------------|-------------|--------------|
| C ID | Represented | Accepted | | | | Paid/Used Accepted Received | | | |
| Material - Aggregate Base Course | | | | | | | | | |
| Metric Ton | | | | | | | | | |
| S 361442 | 5,000.000 | 5,000.000 | | | | 5,000.000 | Meets Specs | 12/09/2004 | |
| Line Item | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| S 363265 | 5,000.000 | | | | | | In Transit | 01/05/2005 | |
| S 363266 | 5,000.000 | 5,000.000 | | | | 5,000.000 | Meets Specs | 01/05/2005 | |
| S 363267 | 5,000.000 | | | | | | In Transit | 01/06/2005 | |
| S 364923 | 2,500.000 | 2,500.000 | | | | 2,500.000 | Meets Specs | 01/14/2005 | |

FIRs: If this box is checked, information from Field Inspection Reports will display on the report. The default setting is checked.

Work Items: If this box is checked, Work Items information will be displayed. The default setting is checked.

MSG and Material Filter: The only default filter that is checked in this area is the one that includes Critical Materials. These filters are useful for investigating discrepancies at the Material level.

Pretest, Certification, Approved List, Visual Inspection, Catalog Cut: These filters are based on the Acceptance method on the Minimum Sampling Guide. Checking the box will limit the materials to those that require the Acceptance method selected. The default setting for all these filters is unchecked.

Sample Required Material Types Only: If this box is checked, the material listing is narrowed to display only those Materials which require Samples. The default setting for all this filter is unchecked.


FIR Required Material Types Only: If this box is checked, the material listing is narrowed to display only those Materials which require Field Inspection Reports. The default setting for all this filter is unchecked.

NOTE: Materials often have several Acceptance methods which must all be met before the material's Accepted Quantity is updated. While these filters limit the results to materials which require a specific method, be

aware that more than one method may be required to obtain an Accepted Quantity.

Criticality: These three filters provide the ability to limit the materials by the Project Acceptance Criticality Code. See the information about Criticality Codes in the previous section "Column Definitions for Contract Material Quantities Tab". The default setting for these filters is Criticality equals Critical checked.

Include 'Not Received' Material Types: This filter allows for the inclusion or exclusion of Not Received Material Types. The default setting for this filter is unchecked.

Material: Clicking on the Material Selection icon  opens the Material Selection window and allows a single Material to be selected for review. The default setting for this filter is All materials.

Material Type: Selecting a Material Type from the drop down list allows for the review of all materials of a single Minimum Sampling Guide Material Type. The default setting for this filter is All Material Types.

Group: Selecting a Group from the drop down list allows for the review of all the Material Types and Materials that belong to a single Minimum Sampling Guide Material Group. The MSG Group is a high level classification such as Steel, Pipe, or Asphalt. The default setting for this filter is All Material Groups.

Contract Line Item Filters: The Contract Line Item filters allow for manipulation of the display based on the Line Item and type of Discrepancy. The default settings are for All Line Items, All discrepancies, and display of all the detail records.

Line Item: This filter is useful for investigating discrepancies at the Line Item level. It provides information similar to the Contract Materials w/ Line Items Standard Report. The default display is set for all Line Items.

Discrepancies (at LI Level): These filters allow very specific groupings of discrepancies to be displayed, based on a Discrepancy Type and Discrepancy Category.

DISCREPANCY TYPE: Use these filters to select the type of discrepancy to display (overages, shortages, both, or neither).

None: Includes all data based on the other filter criteria. Nothing is excluded from the display.

Both: Only displays materials where (Accepted – Paid), (Received – Paid) or (Received – Accepted) returns either a negative or positive value not equal to zero.

Negative: (Abbreviated as **-ve**) Only displays materials where (Accepted – Paid), (Received – Paid) or (Received – Accepted) returns a negative value. (Shortages)

Positive: (Abbreviated as **+ve**) Only displays materials where (Accepted – Paid), (Received – Paid) or (Received – Accepted) returns a positive value. (Overages)

DISCREPANCY CATEGORY: Use these filters to select the category of discrepancy to display (e.g., has more material been paid for than has been received, has more material been accepted than received, etc.).

None: Includes all data based on the other filter criteria. Nothing is excluded from display.

Accepted – Paid: Only displays materials where the Accepted Quantity and the Paid Quantity are not equal.

Received – Paid: Only displays materials where the Received Quantity and the Paid Quantity are not equal.

Received – Accepted: Only displays materials where the Received Quantity and the Accepted Quantity are not equal.

Display Detail: This filter allows the display of all the records that contribute to the Paid, Accepted, and Received quantities. These include Pay Records, Material Receipts Reports, Ticket Books, Samples, Field Inspection Reports, etc. The details will only be displayed for those items if they are checked as Included in the Source Filter.

Show Line Separator: Checking this box adds a thin gray line between every row. The default setting is unchecked.

Hide Zero Qtys: Checking this box eliminates Materials where the Paid, Accepted, and Received quantities are zero. This is useful at the beginning of the project when few materials have been paid for or received. The default setting is unchecked.

Sort Order & Group Totals: The radio buttons define how the data is grouped, and the dropdowns define how the data is sorted. There are three Presets. It is also possible to choose None and define a personal sort and group order.

By Contract LI: The sort order for this Preset is Contract Line Item first, and then the Materials assigned to that Line Item. This provides a report similar to the Contract Materials with Line Items Report but in Line Item instead of Material order.

By Material: The sort order for this Preset is Material with no Line Item information. You can add Line Item as a second Sort By field and create the Contract Materials with Line Items Report.

Other: The sort order for this Preset is MSG Material Type, Material, Contract Line Item, and Source.

Using the Restore Defaults, Save Settings, and Restore Settings buttons

These buttons provide a way to return to default settings after making changes without having to close and reopen the window.

Restore Defaults: Clicking this button returns the filters to the system default settings.

Save Settings, and Restore Settings: It is possible to customize the filters and save this report for future use. If you modify the standard default filter settings, and want to save this report to use again, click the Save Settings button. Then whenever you login and use the Audit Materials function, your custom report will open.

If you modify your custom report and wish to return to it, click the Restore Settings box.

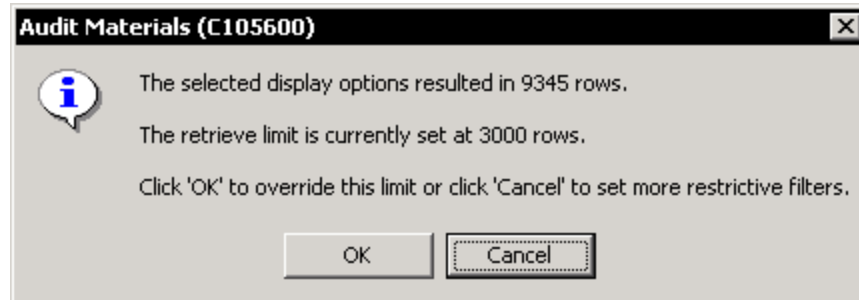
If you want to replace your custom report with another custom report, click the Save Settings button again.

If you want your custom report to be restored to the system defaults, click Restore Defaults, and the Save Settings. When the message box saying "This will overwrite your existing Saved Settings. Continue?" answer Yes. Now the window will open with the default settings again.

Viewing the Report

To view the report, click the **OK** button.

Note: On contracts for which large amounts of data has been entered, you may receive a warning stating:



It is best to **Cancel** the report and review the discrepancies by Line Item or Material. A contract with 5000 rows of data creates a report with 130 pages. This is a difficult amount of information to efficiently review.

Below is an Example of how the details window appears when using the default filters:

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File Edit Functions Inquiries References Admin Tools Window Help

Audit Materials (C201548)

Contract Material Quantities Detail Previous Material Quantities Log

as of 12/4/2007 15:24:06

| S | R | Source | Source Quantity | CBOM D | Conversion | Material Quantity | Source | Source | Su |
|--|-------|-------------|-----------------|---------|------------|-------------------|----------|----------|---------------|
| C | ID | Represented | Accepted | PAR | Factor | Paid/Used | Accepted | Received | tut |
| Material - Asphalt Concrete Base Course, Type RB 25.0B | | | | | | | | | |
| Tons | | | | | | | | | |
| T | 2 | 149.700 | | | | | | 149.700 | |
| P | 1/10 | 250 | | 149.700 | | 37.425 | | | Not Estimated |
| P | 1/12 | 250 | | 149.700 | | 37.425 | | | Processed |
| P | 1/12 | 250 | | 149.700 | | 37.425 | | | Processed |
| Total for group Material - Asphalt Concrete Base Course, Type RB 25.0B: | | | | | | 112.275 | .000 | 149.700 | |
| Material - Asphalt Concrete Intermediate Course, Type RI 19.0B | | | | | | | | | |
| Tons | | | | | | | | | |
| T | 3 | 21.370 | | | | | | 21.370 | |
| P | 1/10 | 250 | | 21.370 | | 5.343 | | | Not Estimated |
| P | 1/12 | 250 | | 21.370 | | 5.343 | | | Processed |
| P | 1/12 | 250 | | 21.370 | | 5.343 | | | Processed |
| Total for group Material - Asphalt Concrete Intermediate Course, Type RI 19.0B: | | | | | | 16.029 | .000 | 21.370 | |
| Material - Bituminous Coated Corrugated Steel Pipe Culvert, Type B, 0.064 in Thick, 15 in | | | | | | | | | |
| Linear Feet | | | | | | | | | |
| P | 2/58 | 1.000 | | 40.000 | | 40.000 | | | Processed |
| F | 21076 | 40.000 | 40.000 | .000 | | | 40.000 | | Authorized |
| Total for group Material - Bituminous Coated Corrugated Steel Pipe Culvert, Type B, 0.064 in Thick, 15 in: | | | | | | 40.000 | 40.000 | .000 | |
| Material - Bituminous Coated Corrugated Steel Pipe Elbows, Type B, 0.064 in Thick, 15 in | | | | | | | | | |
| Each | | | | | | | | | |
| P | 2/58 | 1.000 | | 4.000 | | 4.000 | | | Processed |
| F | 21076 | 4.000 | 4.000 | .000 | | | 4.000 | | Authorized |
| Total for group Material - Bituminous Coated Corrugated Steel Pipe Elbows, Type B, | | | | | | 4.000 | 4.000 | .000 | |

Alt ID Distribution Go To Source Display Options More Info 1 of 3 Pages

Ready

Column Definitions for Details Tab Interactive Report

SRC: Stands for Source. Abbreviations for the Source Documents are as follow:

| Entry | Stands for: | Notes: |
|-------|--------------------------|---|
| M | Material Received Report | Updates Received, and sometimes, Accepted, Quantities |
| T | Ticket | Updates Received, and Paid Quantities (unless marked Do Not Pay) |
| P | Pay Record | Updates Paid Quantities (unless marked Do Not Pay) |
| W | Work Accomplished | Updates Paid Quantities |
| S | Sample | Updates Accepted Quantities |
| F | Field Inspection Report | Updates Accepted Quantities from the following report types: <ul style="list-style-type: none">- Concrete Pavement- Corrugated Metal Pipe- Guardrail- Stay in Place Forms- Structural Steel |

Source ID: The Material Receipt number, Ticket Book number, Pay Record Book and Page number, Sample ID, or Field Inspection Report Number for the quantities on this line.

Source Quantity

Represented: The Represented quantity from the Material Receipt, Ticket Book, Pay Record, Sample, or Field Inspection Report.

Accepted: The Accepted quantity from the Material Receipt, Sample, or Field Inspection Report.

PAR: The quantity from the PAR field for a Sample, or Field Inspection Report.

CBOM Conversion Factor: The Conversion Factor entered on the Contract Bill of Materials report for this material if the source document type is P (Pay Record).

DNP: A * in this column indicates that the Pay Record or Ticket is marked Do Not Pay.

Material Quantity

Paid/Used: The Pay Record quantity multiplied by the conversion factor for the material or the Ticket Book quantity.

Accepted: Accepted quantities from Project Acceptance Samples and Acceptance Field Inspection Reports.

Received: Quantity of the material received on a Material Receipt report or Ticket

Source Status: All source documents are shown on this report. The status column indicates at what stage the item is in its Received, Payment (Not Estimated, In Process,

Processed) or Approval (Authorized, Meets Specs, Does Not Meet Specs, etc.) process.

Source Date: The Material Receipt date, Ticket Book date, Pay Record date, Sampled Date, or FIR Inspection Date.

Substitution Group: Indicates which Material can substitute for another. Also points out unnecessary materials which can be deleted from the Contract Bill of Materials.

Using the Audit Materials Detail Tab buttons

There are four buttons at the bottom of the Details tab once the Report has been generated. They are the Alt ID Distribution button, The Go to Source button, the Display Options button, and the More Info button.

The Alt ID Distribution button: This button is for future use.

The Go to Source button: This button allows keyboard navigation to the Source record. The other access is by double clicking on the row in the report corresponding to the source record you wish to review.

The Display Options button: Clicking on this button reopens the Project Certification Display Options popup window so that materials and/or line items, etc. can be changed.

The More Info button: Clicking on this button opens the Project Certification - More Info popup for the record selected. The popup has information about the Source, the Material and Material Type, the Contract Line Item, and Source and Material Quantities.

The second tab in the popup is the Acceptance Tab. This is where the Accepted quantities checklist is displayed. By reviewing the list, it is possible to determine why the Accepted quantity has or has not updated.

The Previous Material Quantities Tab

The Previous Material Quantities tab shows the previous set of material quantities of the contract, i.e, the material quantities stored and displayed in the Material Quantities tab just before 'Regenerate' was clicked. This is displayed only while the Audit Materials window is open in the current session.

The Log Tab

The Log tab shows the activity log of the most recent 25 (re)generations of project certification data for the contract specified. This indicates who executed project certification data generation, from where in HiCAMS, and how long it took to process the quantities on the database server.

The Discrepancy Review Process

To work with the Audit Materials window, go to **Functions -> Contract Tracking -> Audit Materials**.

Step 1: Enter the Contract Number whose project records you wish to review in the Contract field and hit Enter. The Audit Materials window opens to the Contract Material Quantities Tab.

Note: For information on ways to find your contract number, follow the "HiCAMS Basics" link on the User Guide section of the HiCAMS Home Page.

Step 2: The Critical Materials with a negative Accepted minus Paid quantity appear at the top of the list. These are the ones which must be reviewed. Materials which are Non-Critical or Minor should be reviewed as well. These materials have a * in the column between Paid/Used and Accepted columns.

Step 3: Click on the Detail tab, and generate the default report. For larger contracts with many materials, you may need to generate the report by Material Type groups.

Step 4: Examine the data for the first Material on the Detail tab. To see the details of any Source document, click on the row you wish to view. A Next arrow will appear at the beginning of the active row.

as of 3/15/2006 17:16:48

| S | R Source | Source Quantity | CBOM D | Conversion N | Material Quantity | Source Status | Source Date |
|--------|--|-----------------|----------|--------------|-----------------------------|----------------|---------------------|
| C ID | Repr | | Factor P | | Paid/Used Accepted Received | | |
| | Material - Asphalt C | | | | Tons | | |
| T 4 | | | | | 18.480 | 18.480 | Processed 07/15/200 |
| | Total for group Material - Asphalt Concrete Surface Course, Type RSF 9.5A: | | | | 6,220.650 | .000 6,220.650 | |
| | Material - Permanent Raised Pavement Markers | | | | Each | | |
| P 1/18 | | 259.000 | 1.000 | | 259.000 | Processed | 09/15/200 |
| P 2/24 | | 725.000 | 1.000 | | 725.000 | Processed | 09/15/200 |
| P 3/18 | | 26.000 | 1.000 | | 26.000 | Processed | 09/15/200 |
| | Total for group Material - Permanent Raised Pavement Markers: | | | | 1,010.000 | .000 .000 | |

Step 5: Double-clicking on the row will take you to the Source document. You can also select the row and click the "Go to Source" button.

Step 6: For assistance in determining why there is a discrepancy, the Minimum Sampling Guide, Contract BOM, and Acceptance Flow chart have been incorporated into this window. These are accessed by clicking on the "More Info" button. This opens the **Project Certification Detail** window.

Here is an example of the **More Info** tab of the Project Certification Detail window for Contract C201346 and Material of Asphalt Concrete Base Course, Type RB 25.0B.

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Project Certification Detail - More Info

More Info Acceptance

Source
 Tickets 1 **Status:** Processed **Date:** 06/30/2005 **Sam**
Received By: Anthony L. Talley

Material and Material Type
Material: Asphalt Concrete Base Course, Type RB 25.0B
Source MSG **Criticality / Group:** Critical Asphalt **CBOM M**
Material Type: Asphalt Bases & Pavements Asphalt E
How Accepted: Sample/Test Sample/T
How Received: Ticket Ticket

Contract Line Item
Line Item: 5 - ASP CONC BASE CRS B25.0B **Line Item Quantity:** 11,389.000
Plan: 11,389.000
UOM: Tons **Estimated:** 6,254.120

Source Quantity **CBOM Conversion Factor:** **Material Quantity**
Represented: 795.440 **Paid/Used:** 795.440
Accepted: **Accepted:** **Received:** 795.440
PAR: **Derived Source Material Quantity:** 795.440 **MRR A**
Rejected:

Close

Alt ID Distribution **Go To Source** **Display Options** **More Info** 1 of 2 Pages

Ready

The **More Info** tab displays the Minimum Sampling Guide and Contract Bill of Materials information. Now there is no need to navigate to additional windows to see this data.

Here is an example of the **Acceptance** tab of the Project Certification Detail window for Contract C201346 and Material of Asphalt Concrete Base Course, Type RB 25.0B.

| Check | Value | OK | Stop | Remarks |
|--|-----------|----|------|--|
| Status Ok ? | Processed | ✓ | | If record is VOID, do not accept material quantity. |
| Do Not Pay Replacement Indicated ? | No | ✓ | | If DNP Replacement Indicated, do not accept material quantity. |
| Certifications Required ? | No | ✓ | | |
| Certifications Present ? | N/A | ✓ | | If certifications are required but not present, do not accept material |
| Small Quantity Allowed ? | No | ✓ | | |
| Small Quantity Indicated ? | N/A | ✓ | | If small quantity is allowed and checked, accept total quantity. |
| FIR Required ? | No | ✓ | | If FIR is required and Pretest is N/A or No Match, material quantity |
| Pretest-No Match ? | N/A | ✓ | | If FIR is required and Pretest is N/A or No Match, material quantity |
| Pretest-Alternate ID Required ? | N/A | ✓ | | If FIR Required and Pretest is Alternate ID Required, accept Ticket |
| Pretest-Alternate ID Match From Sample ? | N/A | ✓ | | If FIR is required and Pretest is Alternate ID Match From Sample, a |
| Sample Test Required? | Yes | ✓ | ⊘ | If sample test is required, material quantity will be accepted by sam |
| Pretested Required or Optional ? | No | | | |
| Pretest-No Match ? | N/A | | | If Pretest-Alternate ID No Match, accept Ticket total quantity. |
| Pretest-Alternate ID Required ? | N/A | | | If Pretest-Alternate ID Required, accept Ticket total quantity. |
| Pretest-Alternate ID Match Sample/FIR ? | N/A | | | If Pretest-Alternate ID Match Sample/FIR, accept Ticket total quant |
| None Of The Above ? | No | | | If none of the above, accept Ticket total quantity. |

This tab lists the same steps for determining Accepted Quantities that previously required using the Project Acceptance flow chart.

From the More Info tab, you learned that the How Accepted method for this material is by Sample Test. The Acceptance tab confirms that there is no Accepted quantity because for this Material and Minimum Sampling Guide combination, the ticket does not contribute to the Accepted Quantity. The Accepted Quantity comes from Project Acceptance samples and there are none entered for this material.

This is the same process used to review the Contract Materials Discrepancy Report, only with easier access to the supporting data.

Step 7: After the discrepancy has been investigated and its cause determined, make any corrections needed. Regenerate the report. If a discrepancy still exists, enter a note of explanation on the Contract Material Quantities tab in the column **Constr Status**.

Step 8: Click on the Notepad icon and the following window opens. Enter your note explaining the discrepancies. When you are done, click OK and Save the record.

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File Edit Functions Inquiries References Admin Tools Window Help

Audit Materials (C201346)

Contract Material Quantities

Contract: C201346

Description (nickname):

Material Quantities (as of)

| Critical | Material |
|----------|--------------------|
| Critical | Asphalt Concrete |
| Critical | Asphalt Concrete |
| Critical | Asphalt Concrete |
| Critical | Permanent Raised |
| Critical | Asphalt Binder, PC |
| Critical | Asphalt Concrete |
| Critical | Asphalt Concrete |
| Critical | Asphalt Concrete |
| Critical | Patching Existing |
| Minor | Asphalt Plant Mix |
| Minor | Fertilizer - Tons |
| Minor | Incidental Stone B |
| Minor | Limestone (Agricu |
| Non-Crit | Glass Beads - Pol |
| Non-Crit | Seed - Pounds |
| Non-Crit | Thermoplastic for |
| Non-Crit | Thermoplastic for |

Material: Asphalt Concrete Base Course, Type RB 25.0B - Tons

Plan: 11,389.000 **Estimated:** 6,254.120

Paid/Used: 6,254.120 **Accepted:** .000 **Received:** 6,254.120

Notes Log:

New Note:

OK Cancel

1 to 17 of 17 rows

Cancel values and return

| Received | A |
|------------|----|
| 6,254.120 | |
| 4,476.930 | |
| 6,220.650 | |
| .000 | |
| .000 | |
| .000 | |
| .000 | |
| .000 | |
| .000 | |
| .000 | |
| 921.220 | |
| 1.688 | |
| 547.090 | |
| 19.336 | |
| 28,000.000 | (E |
| 722.500 | |
| 48,000.000 | |
| 48,000.000 | |

The next time the Notes log is opened, your comment will be listed in the upper portion of the window, along with any comments entered by others. This log is in date and time order.

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Status & Notes

Material: Asphalt Concrete Base Course, Type RB 25.0B - Tons

Plan: 11,389.000 **Estimated:** 6,254.120

Paid/Used: 6,254.120 **Accepted:** .000 **Received:** 6,254.120

Notes Log:

—mnovello on 3/17/2006 12:23:43—
Reviewed Densities and QA lab reports. All mix produced and placed according to Specifications.

Step 9: Continue investigating remaining discrepancies, entering notes for those which cannot be resolved in HiCAMS.

Remember

1. The Audit Materials function allow for identification and investigation of Materials Discrepancies at the Materials or Line Item level in one part of the application.
2. It is possible to enter notes explaining discrepancies for future reference in the Contract Quantities window.
3. Communication from M&T can be accomplished using the Send Notification function.
4. Reviews of Materials Accepted versus Paid quantities should be performed at a minimum every three months.
5. For assistance in using the Audit Materials function, please contact Marie Novello at the Construction Unit (919.733.2210)